

REMARKS

In an Office Action dated February 8, 2005, the Examiner objected to the Abstract and the specification due to informalities. The Examiner rejected claims 1-3, 5, 6, 11-13, 15, and 16 under 35 U.S.C. §102(e) as being anticipated by Paulraj et al. (U.S. patent no. 6,321,499, hereinafter referred to as "Paulraj"). The Examiner rejected claims 7, 10, 17, and 23 under 35 U.S.C. §103(a) as being unpatentable over Paulraj in view of Rashid-Farrokhi et al. (U.S. patent no. 6,304,750). The Examiner objected to claims 4, 8, 9, 14 and 18-22 as being dependent upon a rejected base claim but as being allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. The rejections are traversed and reconsideration is hereby respectfully requested.

The Examiner rejected claims 1-3, 5, 6, 11-13, 15, and 16 under 35 U.S.C. §102(e) as being anticipated by Paulraj. More specifically, with respect to claim 1, the Examiner contended that Paulraj teaches a transmitting communication device (50) having an antenna array (74) comprising multiple array elements, wherein multiple weighting coefficients (72) are jointly optimized to produce multiple optimized weighting coefficients for use in transmitting to multiple subscriber units, and wherein each optimized weighting coefficient is associated with an element of the multiple array elements and is further associated with a subscriber unit of the multiple subscriber units (col. 2, lines 25-33, 55-57; col. 6, lines 11-14; col. 8, lines 25-33 and 40-67; and col. 9, lines 40-50).

The applicant believes that the Examiner had misinterpreted Paulraj. First, Paulraj merely teaches coding for a transmission to a single subscriber, that is, receiving unit (14). The multiple subscriber units shown in FIG. 1 of Paulraj are merely examples of what may constitute receiving unit 14. Therefore Paulraj cannot be considered to teach the feature of claim 1 of a joint optimization of multiple weighting coefficients to produce multiple optimized weighting coefficients for use by the transmitting communication device in transmissions to multiple subscriber units (thereby jointly minimizing interference among the transmissions to the multiple subscriber units).

Second, Paulraj teaches an adaptive coding system for adaptively coding multiple (k) data streams (SM_1, \dots, SM_k) to produce k' coded streams. These k' coded streams are then conveyed to a transmit processing unit (72), which produces the M transmit signals for conveyance to the M antenna elements via a succeeding upconversion and RF amplification unit (74). In other words, Paulraj teaches an adaptive coding system and not an adaptive weighting system. Weighting, and associated weighters, occurs further along in the transmit signal processing, that is, after the M transmit signals are produced by transmit processing unit (72). Therefore, Paulraj does not teach the features of claim 1 of jointly optimizing multiple weighting coefficients to produce multiple optimized weighting coefficients for use by the transmitting communication device in transmissions to multiple subscriber units, wherein each optimized weighting coefficient of the multiple optimized weighting coefficients is associated with an element of the multiple elements and is further associated with a subscriber unit of multiple subscriber units. Accordingly, the applicant respectfully requests that claim 1 may now be passed to allowance.

Since claims 2-4 depend upon allowable claim 1, the applicant respectfully requests that claims 2-4 may also be passed to allowance.

Claim 11 includes features of multiple weighters, wherein each weighter of the multiple weighters is coupled to an element of multiple elements, and a processor coupled to each weighter of the multiple weighters, wherein the processor jointly optimizes multiple weighting coefficients for use in transmissions to multiple subscriber units and wherein each weighting coefficient of the multiple weighting coefficients is associated with an element of the multiple elements and is further associated with a subscriber unit of the multiple subscriber units. As noted above, such features are not taught by Paulraj. Accordingly, the applicant respectfully requests that claim 11 may now be passed to allowance.

Since claims 12-14 depend upon allowable claim 11, the applicant respectfully requests that claims 12-14 may also be passed to allowance.

Claims 5 and 15 provide for approximating one or more terms in an expression which jointly optimizes a signal-to-noise ratio (SNR) for multiple subscriber units to

produce an approximation of the joint optimization expression of an SNR, and independently optimizing a set of weighting coefficients of multiple sets of weighting coefficients based on the approximation of the joint optimization expression of an SNR to produce a set of optimized weighting coefficients, wherein each set of optimized weighting coefficients of the multiple sets of optimized weighting coefficients corresponds to, and is utilized for a transmission to, a subscriber unit of the multiple subscriber units. No such joint optimization expression is taught by Paulraj, let alone an approximation of the joint optimization expression that permits independently optimizing a set of weighting coefficients of multiple sets of weighting coefficients. Accordingly, the applicant respectfully requests that claims 5 and 15 may now be passed to allowance.

Since claims 6-10 depend upon allowable claim 5 and claims 16-23 depend upon allowable claim 15, the applicant respectfully requests that claims 6-10 and 16-23 may also be passed to allowance.

As the applicant has overcome all substantive rejections and objections given by the Examiner and has complied with all requests properly presented by the Examiner, the applicant contends that this Amendment, with the above discussion, overcomes the Examiner's objections to and rejections of the pending claims. Therefore, the applicant respectfully solicits allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter.

Respectfully submitted,

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